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1 **High-throughput mapping of short-range spatial variations using act electrical metrology**
Xu Ouyang; Berglund, C.N.; Fabian, R.;
Semiconductor Manufacturing, IEEE Transactions on , Volume: 15 , Issue: 1 , 2002
Pages:108 - 117

[Abstract] [PDF Full-Text (1079 KB)] **IEEE JNL**

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2 **Direct least-squares estimation of spatiotemporal distributions from dynamic SPECT projections using a spatial segmentation and tempora splines**
Reutter, B.W.; Gullberg, G.T.; Huesman, R.H.;
Medical Imaging, IEEE Transactions on , Volume: 19 , Issue: 5 , May 2000
Pages:434 - 450

[Abstract] [PDF Full-Text (768 KB)] **IEEE JNL**

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3 **Applications of space-time adaptive processing in wireless communications**
Haimovich, P.M.; Shah, A.;
MILCOM 97 Proceedings , Volume: 3 , 2-5 Nov. 1997
Pages:1098 - 1102 vol.3

[Abstract] [PDF Full-Text (408 KB)] **IEEE CNF**

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1 **Manufacturing issues related to RTP induced overlay errors in a glob alignment stepper technology**
Buller, J.F.; Farahani, M.M.; Garg, S.;
Semiconductor Manufacturing, IEEE Transactions on , Volume: 9 , Issue: 1 , F 1996
Pages:108 - 114

[Abstract] [PDF Full-Text (692 KB)] **IEEE JNL**

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2 **Design and evaluation of a system for microscope-assisted guided interventions (MAGI)**
Edwards, P.J.; King, A.P.; Maurer, C.R., Jr.; De Cunha, D.A.; Hawkes, D.J.; Hi D.L.G.; Gaston, R.P.; Fenlon, M.R.; Jusczyzck, A.; Strong, A.J.; Chandler, C.L. Gleeson, M.J.;
Medical Imaging, IEEE Transactions on , Volume: 19 , Issue: 11 , Nov. 2000
Pages:1082 - 1093

[Abstract] [PDF Full-Text (256 KB)] **IEEE JNL**

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3 **The effect of patterns on thermal stress during rapid thermal proces of silicon wafers**
Hebb, J.P.; Jensen, K.F.;
Semiconductor Manufacturing, IEEE Transactions on , Volume: 11 , Issue: 1 , 1998
Pages:99 - 107

[Abstract] [PDF Full-Text (192 KB)] **IEEE JNL**

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4 **High-spatial-frequency MOS transistor gate length variations in SRA circuits**
Ouyang, X.; Deeter, T.; Berglund, C.N.; Pease, R.F.W.; McCord, M.A.;
Microelectronic Test Structures, 2000. ICMTS 2000. Proceedings of the 2000 International Conference on , 13-16 March 2000

Pages:25 - 31

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1 **Novel at-design-rule via-to-metal overlay metrology for 193-nm lithography**
Ueno, A.; Tsujita, K.; Kurita, H.; Iwata, Y.; Ghinovker, M.; Kassel, E.; Adel, M
Semiconductor Manufacturing, IEEE Transactions on , Volume: 17 , Issue: 3 , 2004
Pages:311 - 316

[Abstract] [PDF Full-Text (1440 KB)] IEEE JNL

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2 **Novel, at-design-rule, via-to-metal overlay metrology for 193 nm lithography**
Ueno, A.; Tsujita, K.; Kurita, H.; Iwata, Y.; Ghinovker, M.; Kassel, E.; Adel, M
Semiconductor Manufacturing, 2003 IEEE International Symposium on , 30 Se Oct. 2003
Pages:134 - 137

[Abstract] [PDF Full-Text (426 KB)] IEEE CNF

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3 **Adaptive interference suppression for CDMA overlay systems**
Wei, P.; Zeidler, J.R.; Ku, W.H.;
Selected Areas in Communications, IEEE Journal on , Volume: 12 , Issue: 9 , D 1994
Pages:1510 - 1523

[Abstract] [PDF Full-Text (1052 KB)] IEEE JNL

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4 **The effect of patterns on thermal stress during rapid thermal proces of silicon wafers**
Hebb, J.P.; Jensen, K.F.;
Semiconductor Manufacturing, IEEE Transactions on , Volume: 11 , Issue: 1 , 1998
Pages:99 - 107

[Abstract] [PDF Full-Text (192 KB)] IEEE JNL

5 **Effective cognitive modeling in an intelligent tutoring system for cardiovascular physiology**
Shim, L.; Evens, M.W.; Michael, J.A.; Rovick, A.A.;
Computer-Based Medical Systems, 1991. Proceedings of the Fourth Annual IEE Symposium , 12-14 May 1991
Pages:338 - 345

[Abstract] [PDF Full-Text (316 KB)] IEEE CNF

6 **Direct least-squares estimation of spatiotemporal distributions from dynamic SPECT projections using a spatial segmentation and tempora splines**
Reutter, B.W.; Gullberg, G.T.; Huesman, R.H.;
Medical Imaging, IEEE Transactions on , Volume: 19 , Issue: 5 , May 2000
Pages:434 - 450

[Abstract] [PDF Full-Text (768 KB)] IEEE JNL

7 **Correction of errors in SPOT-Derived DEM's using GTOPO30 data**
Endreny, T.A.; Wood, E.F.; Hsu, A.;
Geoscience and Remote Sensing, IEEE Transactions on , Volume: 38 , Issue: 3 , May 2000
Pages:1234 - 1241

[Abstract] [PDF Full-Text (3460 KB)] IEEE JNL

8 **The enhanced voltage-dividing potentiometer for high-precision feat placement metrology**
Allen, R.A.; Cresswell, M.W.; Ellenwood, C.H.; Linholm, L.W.;
Instrumentation and Measurement, IEEE Transactions on , Volume: 45 , Issue 1 , Feb. 1996
Pages:136 - 141

[Abstract] [PDF Full-Text (632 KB)] IEEE JNL

9 **Analysis and evaluation of the NASA/JPL TOPSAR across-track interferometric SAR system**
Madsen, S.N.; Martin, J.M.; Zebker, H.A.;
Geoscience and Remote Sensing, IEEE Transactions on , Volume: 33 , Issue: 2 , March 1995
Pages:383 - 391

[Abstract] [PDF Full-Text (832 KB)] IEEE JNL

10 **Editing real world scenes: augmented reality with image-based rendering**
Cobzas, D.; Jagersand, M.; Yerex, K.;
Virtual Reality, 2003. Proceedings. IEEE , 22-26 March 2003
Pages:291 - 292

[Abstract] [PDF Full-Text (438 KB)] IEEE CNF

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1998. (INZZ) The effect of patterns on thermal stress during rapid thermal processing of silicon wafers.

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1997. (INZZ) Characterizing **overlay** registration of concentric 5X and 1X stepper exposure fields using interfield data.

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1988. (INZZ) **Overlay** simulator for wafer steppers.

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Accession number & update
6821592, B2001-03-2550G-033, C2001-03-3350E-004; 20010101.

Title
Interfield sampling method dependency of **overlay** and global alignment.

Author(s)
Jinseog-Hong; Junghyeon-Lee; Hanku-Cho; Jootae-Moon; Sangin-Lee.

Author affiliation
Semicond R&D Center, Samsung Electron Co Ltd, Yongin, South Korea.

Source
Metrology, Inspection, and Process Control for Microlithography XIV, Santa Clara, CA, USA, 28 Feb.-2 March 2000.
Sponsors: SPIE.
In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering (USA), vol.3998, p.856-62, 2000.

CODEN
PSISDG.

ISSN
ISSN: 0277-786X, CCCC: 0277-786X/2000/ ($15.00).

Availability
SICI: 0277-786X(2000)3998L.856:ISMD; 1-G.

Publication year
2000.

Language
EN.

Publication type
CPP Conference Paper, J Journal Paper.

Treatment codes
P Practical; X Experimental.

Abstract
According to the classical calculation of **overlay** margin as 1/4 design rule, the **overlay** control requirement for sub-0.15 mu m design rule device is nominally below 40 nm. To meet this demand, it is necessary that one should analyze every part in global alignment and **overlay** measurement procedure, then factor out the parameter that is known to affect **overlay** control, and correct it as much as possible. One of the major causes degrading **overlay** budget seems to be the nonoptimized wafer sampling method. Compensated but undercorrected **overlay errors** usually fitted as linear terms can be amplified due to improper sampling method e.g. asymmetric one. We have investigated the possible causes that yield global alignment noise and the sampling method dependency of global

alignment repeatability and **overlay model** calculations. The achievement of better alignment repeatability is critical for improving not only in-wafer **overlay** but wafer-to-wafer **overlay** control. It is thus evident that **overlay** control can be improved by reducing alignment noises or by optimizing sampling method. Global alignment repeatability and its results are significantly affected by which chips in a wafer map are selected as global alignment purpose. This result can be understood as noise margin is different for each sampling plan and there exists an optimal sampling method. We tested several sampling methods that belong to symmetric group (translation, inversion, rotation symmetric), which are known to show better noise margin. The criteria to select the best sampling method were residual and linear term reproducibility which are significantly affected by raw data noise. The raw data variations include stage position **errors** and process induced alignment signal abnormality. We found among the candidates the optimal sampling method which leaves the least residual and shows as good repeatability as full chip measurement. Similar results could be obtained for **overlay** sampling method. (2 refs).

Descriptors

integrated-circuit-yield; measurement-errors; photolithography; position-control; position-measurement; sampling-methods; statistical-process-control.

Keywords

interfield sampling method dependence; global alignment; **overlay** alignment; **overlay** control requirement; nonoptimized wafer sampling method; **overlay errors;** alignment noise; repeatability; **overlay model** calculations; noise margin; optimal sampling method; symmetric group; raw data variations; stage position **errors;** process induced alignment signal abnormality; yield loss; mark design.

Classification codes

B2550G (Lithography (semiconductor technology)).
B0170S (Control equipment and processes in production engineering).

```
B7320C    (Spatial variables measurement).
B0240Z    (Other topics in statistics).
C3350E    (Control applications in the electronics industry).
C3120C    (Spatial variables control).
C1140Z    (Other topics in statistics).
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Accession number & update
5803332, B9802-2550G-228; 980121.

Title
Characterizing **overlay** registration of concentric 5X and 1X stepper exposure fields using interfield data.

Author(s)
Goodwin-F; Pellegrini-J-C.

Author affiliation
AMI Semiconduct, Pocatello, ID, USA.

Source
Metrology, Inspection, and Process Control for Microlithography XI, Santa Clara, CA, USA, 10-12 March 1997.
Sponsors: SPIE.
In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering (USA), vol.3050, p.407-17, 1997.

CODEN
PSISDG.

ISSN
ISSN: 0277-786X, CCCC: 0277-786X/97/ ($10.00).

Availability
SICI: 0277-786X(1997)3050L.407:CORC; 1-B.

Publication year
1997.

Language
EN.

Publication type
CPP Conference Paper, J Journal Paper.

Treatment codes
P Practical; T Theoretical or Mathematical; X Experimental.

Abstract
The cost advantages associated with implementing a mix-and-match photolithography process have led to a dramatic increase in the interest and development of these manufacturing environments. Process engineers need to define a method optimizing the exposure field registration between each of the different imaging systems. In this paper a procedure used to evaluate intrafield and interfield **overlay errors** between six ASML 5X steppers and sixteen Ultratech 1X steppers is described. With this technique reticle data, stage registration and a commercially available software analysis package are used to **model** pattern displacement of each stepper within this population. Wafers from each stepper

are first patterned with nine fields, each consisting of a 9 by 9 array of ASML alignment marks. The X and Y stage coordinate of each alignment mark is then measured using a standard ASML 5500/60 intrafield analysis routine. Spreadsheeting the resulting stage registration data, subtracting the expected or "ideal" stage position and correcting for any reticle pattern shifts, grid and intrafield data are obtained. Using this process a data sheet for each stepper was developed and loaded onto the software analysis package for registration modeling. Use of multiple exposure fields per wafer enabled the software to characterize both intrafield and interfield registration by modeling the grid **errors,** subtracting these values, and then performing intrafield analysis of the remaining data; collapsing the intrafield data into a single field a "lens fingerprint " of each stepper lens was derived. Using vector subtraction comparison was made between the lenses of each stepper and an indexed table of exposure field translation **errors** created. This approach generated the required 231 paired data sets needed for optimum matching for each stepper to all others while exposing and measuring only 44 wafers and required no artifact wafers. Measured evaluation results are reviewed and expansion of this procedure to mapping 1X wide field lenses and matching of non-concentric exposure fields discussed. (6 refs).

Descriptors

integrated-circuit-manufacture; photolithography; reticles; semiconductor-process-modelling.

Keywords

overlay registration; stepper exposure fields; interfield data; mix and match photolithography; exposure field registration; imaging systems; intrafield **overlay errors;** interfield **overlay errors;** photolithographic stepper; reticle data; stage registration; pattern displacement modelling; alignment mark; reticle pattern shift; registration modeling; multiple exposure fields; wafer; interfield registration; intrafield registration; lens fingerprint; exposure field translation **errors;** nonconcentric exposure fields.

Classification codes

B2550G (Lithography).
B0170E (Production facilities and engineering).
B2570A (Integrated circuit modelling and process simulation).

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Accession number & update
6443523, B2000-02-2550G-013; 19991201.

Title
New approach to correlating **overlay** and yield.

Author(s)
Preil-M-E; McCormack-J-F-M.

Author affiliation
KLA-Tencor Yield Manage Consulting, Milpitas CA, USA.

Source
Metrology, Inspection, and Process Control for Microlithography XIII, Santa Clara, CA, USA, 15-18 March 1999.
Sponsors: SPIE.
In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering (USA), vol.3677, pt.1-2, p.208-16, 1999.

CODEN
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ISSN
ISSN: 0277-786X, CCCC: 0277-786X/99/ ($10.00).

Availability
SICI: 0277-786X(1999)3677:1/2L.208:ACOY; 1-Y.

Publication year
1999.

Language
EN.

Publication type
CPP Conference Paper, J Journal Paper.

Treatment codes
P Practical; T Theoretical or Mathematical.

Abstract
Integrated circuit design rules are defined with a given **overlay** tolerance, but the exact correlation between measured **overlay** on product wafers and die yield is notoriously difficult to quantify. Interest in better quantifying this relationship is not merely academic. The ability to shrink the **overlay** design rule by even a few nanometers would allow more good die to be printed on every product wafer, providing a substantial economic benefit. Conversely, if the actual distribution of **overlay errors** across a wafer is slightly worse than anticipated in the design rules, the resulting shortfall in yield would be difficult to identify and correct. (9 refs).

Descriptors

integrated-circuit-design; integrated-circuit-yield; photolithography; semiconductor-process-modelling; spatial-variables-measurement.

Keywords

overlay; yield; integrated circuit design rules; **overlay** tolerance; product wafers; die yield; **overlay** design rule; photolithography; simulation **model.**

Classification codes

B2550G (Lithography (semiconductor technology)).
B2570A (Semiconductor integrated circuit design, layout, modelling and testing).
B0170E (Production facilities and engineering).
B7320C (Spatial variables measurement).
B2550X (Semiconductor process modelling and simulation).

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Accession number & update
7213869, B2002-04-2550G-056; 20020325.

Title
Sampling **strategy** and **model** to measure and compensate the **overlay errors.**

Author(s)
Chen-Fu-Chien; Kuo-Hao-Chang; Chih-Ping-Chen.

Source
Metrology, Inspection, and Process Control for Microlithography XV, Santa Clara, CA, USA, 26 Feb.-1 March 2001.
Sponsors: SPIE.
In: Proceedings-of-the-SPIE-The-International-Society-for-Optical-Engineering (USA), vol.4344, p.245-56, 2001.

CODEN
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ISSN
ISSN: 0277-786X, CCCC: 0277-786X/01/ ($15.00).

Availability
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Publication year
2001.

Language
EN.

Publication type
CPP Conference Paper, J Journal Paper.

Treatment codes
P Practical; T Theoretical or Mathematical; X Experimental.

Abstract
Overlay is one of the key design rules for producing VLSI devices. In order to have better resolution and alignment accuracy in lithography processes, it is important to **model** the **overlay errors** and then to compensate them into tolerances. This study aimed to develop a new **model** that bridges the gap between the existing theoretical models and the data obtained in real settings and to discuss the **overlay** sampling strategies with empirical data in a wafer fab. In addition, we used simulation to examine the relations between the various factors and the **overlay errors** caused. The paper concludes with discussions on further research. (13 refs).

Descriptors
error-analysis; error-compensation; image-resolution; integrated-circuit-measurement; integrated-circuit-yield; photolithography;

position-control; sampling-methods; semiconductor-process-modelling; VLSI.

Keywords

sampling **strategy; model; overlay** error measurement; **overlay** error compensation; **overlay** design rules; VLSI devices; lithography process resolution; lithography process alignment accuracy; **overlay** sampling strategies; wafer fab simulation; **overlay errors;** stepper; yield improvement; semiconductor manufacturing; microlithography; wafer fabrication processes; photolithographic exposure tool.

Classification codes

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B2550G    (Lithography (semiconductor technology)).
B2570     (Semiconductor integrated circuits).
B0170E    (Production facilities and engineering).
B2550X    (Semiconductor process modelling and simulation).
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INSPEC - 1969 to date (INZZ)

Accession number & update
6120472, B1999-02-2550G-049; 19990101.

Title
Assessment of thermal loading-induced distortions in optical photomasks due to e-beam multipass patterning.

Author(s)
Shamoun-B; Engelstad-R; Trost-D.

Author affiliation
Wisconsin Univ, Madison, WI, USA.

Source
42nd International Conference on Electron, Ion, and Photon Beam Technology and Nanofabrication, Chicago, IL, USA, 26-29 May 1998.
In: Journal-of-Vacuum-Science-Technology-B (Microelectronics and Nanometer Structures)(USA), vol.16, no.6, p.3558-62, Nov.-Dec. 1998.

CODEN
JVTBD9.

ISSN
ISSN: 0734-211X, CCCC: 0734-211X/98/16(6)/3558(5)/ ($15.00).

Availability
SICI: 0734-211X(199811/12)16:6L.3558:ATLI; 1-V
Electronic Journal Document Number: S0734-211X(98)06506-8.

Publication year
1998.

Language
EN.

Publication type
CPP Conference Paper, J Journal Paper.

Treatment codes
T Theoretical or Mathematical.

Abstract
Thermal loading-induced distortion in the photomask during e-beam patterning has recently received special attention due to its significant contribution to **overlay errors.** Multipass e-beam writing, a **strategy** proposed to reduce the heating effects and associated distortions, was simulated using three-

dimensional finite element models. Thermal responses of the photomask during multipass patterning were determined and global in-plane distortions were calculated. For the given system exposure conditions of 40 mu C/cm/sup 2/ at 50 keV, the average value of the 3 sigma pattern placement error due to the bulk heating of the photomask obtained from multipass writing was found to be approximately=3.5 nm which is 28% lower than that of single pass writing. Parametric studies showed that thermal radiation has a large influence on the mask cooling. (8 refs).

Descriptors

electron-beam-lithography; finite-element-analysis; masks.

Keywords

thermal loading; optical photomask; electron beam multipass writing; **overlay** error; three dimensional finite element **model;** pattern placement error; bulk heating; global in plane distortion; mask cooling; simulation; thermal radiation.

Classification codes

B2550G (Lithography (semiconductor technology)).
B0290T (Finite element analysis).

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1 Survey of expert critiquing systems: practical and theoretical frontiers
Barry G. Silverman
April 1992 **Communications of the ACM**, Volume 35 Issue 4
Full text available: pdf(2.84 MB) Additional Information: full citation, references, citings, index terms

Keywords: critics, expert critiquing systems

2 Interactive student modeling
Trent Miskelly
April 1998 **Proceedings of the 36th annual Southeast regional conference**
Full text available: pdf(905.24 KB) Additional Information: full citation, references, index terms

3 Sacrificing the calf of flexibility on the altar of reliability
Peter J. Denning
October 1976 **Proceedings of the 2nd international conference on Software engineering**
Full text available: pdf(333.60 KB) Additional Information: full citation, abstract, index terms

A pattern of conflict between flexibility and reliability in system designs is examined.

4 Inference of network properties: An algebraic approach to practical and scalable overlay network monitoring
Yan Chen, David Bindel, Hanhee Song, Randy H. Katz
August 2004 **Proceedings of the 2004 conference on Applications, technologies, architectures, and protocols for computer communications**
Full text available: pdf(461.14 KB) Additional Information: full citation, abstract, references, index terms

Overlay network monitoring enables distributed Internet applications to detect and recover from path outages and periods of degraded performance within seconds. For an overlay network with n end hosts, existing systems either require $O(n^2)$ measurements, and thus lack scalability, or can only estimate the latency but not congestion or failures. Our earlier extended abstract [1] briefly proposes an algebraic approach that selectively monitors k linearly indep ...

Keywords: dynamics, load balancing, network measurement and monitoring, numerical linear algebra, overlay, scalability

5 Video retrieval: Semi-supervised learning for facial expression recognition

Ira Cohen, Nicu Sebe, Fabio G. Cozman, Thomas S. Huang

November 2003 **Proceedings of the 5th ACM SIGMM international workshop on Multimedia information retrieval**

Full text available: pdf(341.70 KB) Additional Information: full citation, abstract, references, index terms

Automatic classification by machines is one of the basic tasks required in any pattern recognition and human computer interaction applications. In this paper, we discuss training probabilistic classifiers with labeled and unlabeled data. We provide an analysis which shows under what conditions unlabeled data can be used in learning to improve classification performance. We discuss the implications of this analysis to a specific type of probabilistic classifiers, Bayesian networks, and propose a ...

Keywords: Bayesian networks, facial expression recognition, semi-supervised learning

6 Special issue on user modeling: Modeling the user in natural language systems

Robert Kass, Tim Finin

September 1988 **Computational Linguistics**, Volume 14 Issue 3

Full text available: pdf(2.13 MB) Additional Information: full citation, abstract, references, citings

Publisher Site

For intelligent interactive systems to communicate with humans in a natural manner, they must have knowledge about the system users. This paper explores the role of *user modeling* in such systems. It begins with a characterization of what a user model is and how it can be used. The types of information that a user model may be required to keep about a user are then identified and discussed. User models themselves can vary greatly depending on the requirements of the situation and the imple ...

7 Representing and using procedural bugs for educational purposes

John Seely Brown, Richard R. Burton, Kathy M. Larkin

January 1977 **Proceedings of the 1977 annual conference**

Full text available: pdf(851.62 KB) Additional Information: full citation, abstract, references, citings, index terms

"If you can both listen to children and accept their answers not as things to just be judged right or wrong but as pieces of information which may reveal what the child is thinking you will have taken a giant step toward becoming a master teacher rather than merely a disseminator of information." —J.A. Easley, Jr. & Russell E. Zwoyer

8 IS '97: model curriculum and guidelines for undergraduate degree programs in information systems

Gordon B. Davis, John T. Gorgone, J. Daniel Couger, David L. Feinstein, Herbert E. Longenecker

December 1997 **ACM SIGMIS Database , Guidelines for undergraduate degree programs on Model curriculum and guidelines for undergraduate degree programs in information systems**, Volume 28 Issue 1

Full text available: pdf(7.24 MB) Additional Information: full citation, citings

9 Computational strategies for object recognition

Paul Suetens, Pascal Fua, Andrew J. Hanson

March 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 1

Full text available: pdf(6.37 MB) Additional Information: full citation, abstract, references, citings, index terms, review

This article reviews the available methods for automated identification of objects in digital

images. The techniques are classified into groups according to the nature of the computational strategy used. Four classes are proposed: (1) the simplest strategies, which work on data appropriate for feature vector classification, (2) methods that match models to symbolic data structures for situations involving reliable data and complex models, (3) approaches that fit models to the photometry and ...

Keywords: image understanding, model-based vision, object recognition

10 Peer-to-peer infrastructure: Secure routing for structured peer-to-peer overlay networks
Miguel Castro, Peter Druschel, Ayalvadi Ganesh, Antony Rowstron, Dan S. Wallach
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue SI

Full text available: pdf(1.99 MB) Additional Information: full citation, abstract, references

Structured peer-to-peer overlay networks provide a substrate for the construction of large-scale, decentralized applications, including distributed storage, group communication, and content distribution. These overlays are highly resilient; they can route messages correctly even when a large fraction of the nodes crash or the network partitions. But current overlays are not secure; even a small fraction of malicious nodes can prevent correct message delivery throughout the overlay. This problem ...

11 Enhancing simulation education with intelligent tutoring systems
Simon J. E. Taylor, Julika Siemer
November 1996 **Proceedings of the 28th conference on Winter simulation**

Full text available: pdf(588.25 KB) Additional Information: full citation, references

12 Technical session 4: multimedia streaming: Application-specific path switching: a case study for streaming video
Shu Tao, Roch Guérin
October 2004 **Proceedings of the 12th annual ACM international conference on Multimedia**

Full text available: pdf(322.23 KB) Additional Information: full citation, abstract, references, index terms

The focus of this paper is on improving the quality of streaming video transmitted over the Internet. The approach we investigate assumes the availability of multiple paths between the source and the destination, and dynamically selects the best one. Although this is not a new concept, our contribution is in estimating the "goodness" of a path from the perspective of the video stream, instead of relying only on raw network performance measures. The paper starts by showing that the use of raw ...

Keywords: path switching, quality, streaming video

13 A survey of image registration techniques
Lisa Gottesfeld Brown
December 1992 **ACM Computing Surveys (CSUR)**, Volume 24 Issue 4

Full text available: pdf(5.20 MB) Additional Information: full citation, abstract, references, citings, index terms, review

Registration is a fundamental task in image processing used to match two or more pictures taken, for example, at different times, from different sensors, or from different viewpoints. Virtually all large systems which evaluate images require the registration of images, or a closely related operation, as an intermediate step. Specific examples of systems where image registration is a significant component include matching a target with a real-time image of a scene for target recognition, mon ...

Keywords: image registration, image warping, rectification, template matching

14 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren

November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative research**

Full text available: pdf(4.21 MB) Additional Information: full citation, abstract, references, index terms

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams are often used to obtain a better understanding of the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Waterloo. However, these diagrams are often very complex and do not provide the user with the desired overview of the application. In our experience, such tools display repeated occurrences of non-trivial commun ...

15 Computing curricula 2001

September 2001 **Journal on Educational Resources in Computing (JERIC)**

Full text available: pdf(613.63 KB) html(2.78 KB) Additional Information: full citation, references, citings, index terms

16 Man-machine interaction: Computer-aided programmed techniques in support of military information systems

Ruth M. Davis, Sylvia R. Mayer, R. Morgan

August 1965 **Proceedings of the 1965 20th national conference**

Full text available: pdf(658.90 KB) Additional Information: full citation, abstract, references, index terms

THIS PAPER describes research and development addressed to the problem of how to train men in the effective use of military information systems. Three questions are explored: What is the operational concept which dictates the unusual training needs in these systems? What new on-the-job training capability is required in these systems? How can this requirement be met?

17 Overlay & peer-to-peer networks: Bullet: high bandwidth data dissemination using an overlay mesh

Dejan Kostić, Adolfo Rodriguez, Jeannie Albrecht, Amin Vahdat

October 2003 **Proceedings of the nineteenth ACM symposium on Operating systems principles**

Full text available: pdf(416.10 KB) Additional Information: full citation, abstract, references, index terms

In recent years, overlay networks have become an effective alternative to IP multicast for efficient point to multipoint communication across the Internet. Typically, nodes self-organize with the goal of forming an efficient overlay tree, one that meets performance targets without placing undue burden on the underlying network. In this paper, we target high-bandwidth data distribution from a single source to a large number of receivers. Applications include large-file transfers and real-time mul ...

Keywords: bandwidth, overlays, peer-to-peer

18 A high capacity multihop packet CDMA wireless network

Ali Nabi Zadeh, Bijan Jabbari

July 2003 **Wireless Networks**, Volume 9 Issue 4

Full text available: pdf(498.93 KB) Additional Information: full citation, abstract, references, index terms

Wireless multihop networks overlaid with cellular structure have the potential to support high data rate Internet traffic. In this paper, we consider techniques by which the system capacity of such networks can be increased. First, methods for increasing link capacity in

single-user systems are explored. Subsequently, we consider a different set of techniques suitable for multiuser systems. We also investigate the effect of traffic dynamics on system capacity and ways to achieve the maximum thro ...

Keywords: ad hoc networks, internet, multihop networks, network capacity, routing strategy, smart antennas, space-time processing, wireless packet CDMA

19 Status report of the graphic standards planning committee

Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Full text available: pdf(15.01 MB) Additional Information: full citation, references, citings

20 Technical reports

SIGACT News Staff

January 1980 **ACM SIGACT News**, Volume 12 Issue 1

Full text available: pdf(5.28 MB) Additional Information: full citation

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Barry G. Silverman
April 1992 **Communications of the ACM**, Volume 35 Issue 4
Full text available: pdf(2.84 MB) Additional Information: full citation, references, citings, index terms

Keywords: critics, expert critiquing systems

2 Computing curricula 2001
September 2001 **Journal on Educational Resources in Computing (JERIC)**
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3 Curriculum 68: Recommendations for academic programs in computer science: a report of the ACM curriculum committee on computer science
William F. Atchison, Samuel D. Conte, John W. Hamblen, Thomas E. Hull, Thomas A. Keenan, William B. Kehl, Edward J. McCluskey, Silvio O. Navarro, Werner C. Rheinboldt, Earl J. Schweppe, William Viavant, David M. Young
March 1968 **Communications of the ACM**, Volume 11 Issue 3
Full text available: pdf(6.63 MB) Additional Information: full citation, references, citings

Keywords: computer science academic programs, computer science bibliographies, computer science courses, computer science curriculum, computer science education, computer science graduate programs, computer science undergraduate programs

4 Technical reports
SIGACT News Staff
January 1980 **ACM SIGACT News**, Volume 12 Issue 1
Full text available: pdf(5.28 MB) Additional Information: full citation

5 IS '97: model curriculum and guidelines for undergraduate degree programs in information systems

Gordon B. Davis, John T. Gorgone, J. Daniel Couger, David L. Feinstein, Herbert E. Longenecker

December 1997 **ACM SIGMIS Database , Guidelines for undergraduate degree programs on Model curriculum and guidelines for undergraduate degree programs in information systems**, Volume 28 Issue 1

Full text available: pdf(7.24 MB) Additional Information: full citation, citings

6 Status report of the graphic standards planning committee

Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Full text available: pdf(15.01 MB) Additional Information: full citation, references, citings

7 Reticle enhancement technology: implications and challenges for physical design

W. Grobman, M. Thompson, R. Wang, C. Yuan, R. Tian, E. Demircan

June 2001 **Proceedings of the 38th conference on Design automation**

Full text available: pdf(228.37 KB) Additional Information: full citation, abstract, references, citings, index terms

In this paper, we review phase shift lithography, rule vs. model based methods for OPC and model-based tiling, and discuss their implications for layout and verificat ion. We will discuss novel approaches, using polarizing films on reticles, which change the game for phase-shift coloring, and could lead to a new direction in c:PSM constraints on physical design. We emphasize the need to do tiling that is model-driven and uses optimization techniques to achieve planarity for better manufactu ...

Keywords: OPC, PSM, RET, mask data preparation, optical proximity correction, reticle enhancement technology, subwavelength lithography, tiling

8 Supporting cognitive models as users

Frank E. Ritter, Gordon D. Baxter, Gary Jones, Richard M. Young

June 2000 **ACM Transactions on Computer-Human Interaction (TOCHI)**, Volume 7 Issue 2

Full text available: pdf(313.91 KB) Additional Information: full citation, abstract, references, citings, index terms

Cognitive models are computer programs that simulate human performance of cognitive skills. They have been useful to HCI by predicting task times, by assisting users, and by acting as surrogate users. If cognitive models could interact with the same interfaces that users do, the models would be easier to develop and would be easier to apply as interface testers. This approach can be encapsulated as a cognitive model interface management system (CMIMS), which is analogous to and based on a u ...

Keywords: cognitive modeling, usability engineering

9 MPEG-4: an object-based multimedia coding standard supporting mobile applications

Atul Puri, Alexandros Eleftheriadis

June 1998 **Mobile Networks and Applications**, Volume 3 Issue 1

Full text available: pdf(747.80 KB) Additional Information: full citation, abstract, references, citings, index terms, review

The ISO MPEG committee, after successful completion of the MPEG-1 and the MPEG-2 standards is currently working on MPEG-4, the third MPEG standard. Originally, MPEG-4 was

conceived to be a standard for coding of limited complexity audio-visual scenes at very low bit-rates; however, in July 1994, its scope was expanded to include coding of scenes as a collection of individual audio-visual objects and enabling a range of advanced functionalities not supported by other standards. One of the ke ...

10 High availability path design in ring-based optimal networks
Wayne D. Grover
August 1999 **IEEE/ACM Transactions on Networking (TON)**, Volume 7 Issue 4
Full text available: pdf(308.91 KB) Additional Information: full citation, references, index terms

11 Analysis of rerouting in circuit-switched networks
Eric W. M. Wong, Andy K. M. Chan, Tak-Shing Peter Yum
June 2000 **IEEE/ACM Transactions on Networking (TON)**, Volume 8 Issue 3
Full text available: pdf(216.36 KB) Additional Information: full citation, references, citings, index terms

Keywords: circuit-switched networks, dynamic routing, least loaded routing, rerouting

12 Storage: An evaluation of multi-resolution storage for sensor networks
Deepak Ganesan, Ben Greenstein, Denis Perelyubskiy, Deborah Estrin, John Heidemann
November 2003 **Proceedings of the first international conference on Embedded networked sensor systems**
Full text available: pdf(299.34 KB) Additional Information: full citation, abstract, references

Wireless sensor networks enable dense sensing of the environment, offering unprecedented opportunities for observing the physical world. Centralized data collection and analysis adversely impact sensor node lifetime. Previous sensor network research has, therefore, focused on in network aggregation and query processing, but has done so for applications where the features of interest are known a priori. When features are not known a priori, as is the case with many scientific applications in dens ...

13 Designing SoCs for yield improvement: Using embedded FPGAs for SoC yield improvement
Miron Abramovici, Charles Stroud, Marty Emmert
June 2002 **Proceedings of the 39th conference on Design automation**
Full text available: pdf(200.31 KB) Additional Information: full citation, abstract, references, citings, index terms

In this paper we show that an embedded FPGA core is an ideal host to implement infrastructure IP for yield improvement in a bus-based SoC. We present methods for testing, diagnosing, and repairing embedded FPGAs, for which complete testability is achieved without any area overhead or performance degradation. We show how an FPGA core can provide embedded testers for other cores in the SoC, so that cores designed to be tested with external vectors can be tested with BIST, and the entire SoC can be ...

14 Curriculum '78: recommendations for the undergraduate program in computer science— a report of the ACM curriculum committee on computer science
Richard H. Austing, Bruce H. Barnes, Della T. Bonnette, Gerald L. Engel, Gordon Stokes
March 1979 **Communications of the ACM**, Volume 22 Issue 3
Full text available: pdf(2.20 MB) Additional Information: full citation, abstract, references, citings

Contained in this report are the recommendations for the undergraduate degree program in Computer Science of the Curriculum Committee on Computer Science (C3S) of the Association for Computing Machinery (ACM). The core curriculum common to all computer science undergraduate programs is presented in terms of elementary level topics and

courses, and intermediate level courses. Elective courses, used to round out an undergraduate program, are then discussed, and ...

Keywords: computer science curriculum, computer science education, computer science undergraduate degree programs, computer sciences courses, continuing education, service courses

15 The consensus problem in fault-tolerant computing
Michael Barborak, Anton Dahbura, Minoslaw Malek
June 1993 **ACM Computing Surveys (CSUR)**, Volume 25 Issue 2
Full text available: pdf(4.80 MB) Additional Information: full citation, references, citings, index terms

Keywords: Byzantine agreement, consensus problem, decision theory, processor membership, system diagnosis

16 Three-dimensional medical imaging: algorithms and computer systems
M. R. Stytz, G. Frieder, O. Frieder
December 1991 **ACM Computing Surveys (CSUR)**, Volume 23 Issue 4
Full text available: pdf(7.38 MB) Additional Information: full citation, references, citings, index terms, review

Keywords: Computer graphics, medical imaging, surface rendering, three-dimensional imaging, volume rendering

17 Synchronization in multimedia data retrieval
Anna Haj Hać, Cindy X. Xue
January 1997 **International Journal of Network Management**, Volume 7 Issue 1
Full text available: pdf(487.64 KB) Additional Information: full citation, abstract, references, index terms

Synchronization of multiple medium streams in real time has been recognized as one of the most important requirements for multimedia applications based on broadband high-speed networks. This article presents a complete synchronization scheme for distributed multimedia information systems. © 1997 John Wiley & Sons, Ltd.

18 Third Generation Computer Systems
Peter J. Denning
December 1971 **ACM Computing Surveys (CSUR)**, Volume 3 Issue 4
Full text available: pdf(3.52 MB) Additional Information: full citation, abstract, references, citings, index terms

The common features of third generation operating systems are surveyed from a general view, with emphasis on the common abstractions that constitute at least the basis for a "theory" of operating systems. Properties of specific systems are not discussed except where examples are useful. The technical aspects of issues and concepts are stressed, the nontechnical aspects mentioned only briefly. A perfunctory knowledge of third generation systems is presumed.

19 Technical reports
SIGACT News Staff
April 1981 **ACM SIGACT News**, Volume 13 Issue 2
Full text available: pdf(2.64 MB) Additional Information: full citation

20 Adaptive rate controlled, robust video communication over packet wireless networks

G. R. Rajugopal, R. H. M. Hafez

June 1998 **Mobile Networks and Applications**, Volume 3 Issue 1

Full text available: pdf(977.91 KB) Additional Information: full citation, abstract, references, citings, index terms, review

Video transmission over wireless packet networks is gaining importance due to the concept of universal personal communication. Further, it is considered an important step towards wireless multimedia. The challenge however is to achieve good video quality over mobile channels, where typically the channel conditions vary due to signal fading. Hence this paper investigates adaptive rate controlled video transmission for robust video communication under packet wireless environment. A combinatio ...

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L6: Entry 1 of 11 File: USPT Sep 8, 1998

US-PAT-NO: 5805866
DOCUMENT-IDENTIFIER: US 5805866 A

TITLE: Alignment method

DATE-ISSUED: September 8, 1998

US-CL-CURRENT: 716/19; 355/53

INT-CL: [06] G06 F 9/455

L6: Entry 2 of 11 File: USPT Oct 1, 1996

US-PAT-NO: 5561606
DOCUMENT-IDENTIFIER: US 5561606 A

TITLE: Method for aligning shot areas on a substrate

DATE-ISSUED: October 1, 1996

US-CL-CURRENT: 716/19; 716/21

INT-CL: [06] H01 L 21/78

L6: Entry 3 of 11 File: USPT Mar 26, 1996

US-PAT-NO: 5502311
DOCUMENT-IDENTIFIER: US 5502311 A

TITLE: Method of and apparatus for detecting plane position

DATE-ISSUED: March 26, 1996

US-CL-CURRENT: 250/548; 250/557

INT-CL: [06] G01 N 2/86

L6: Entry 4 of 11 File: USPT Mar 12, 1996

US-PAT-NO: 5498501
DOCUMENT-IDENTIFIER: US 5498501 A
**** See image for Certificate of Correction ****

TITLE: Exposure method

DATE-ISSUED: March 12, 1996

US-CL-CURRENT: 430/22; 250/491.1, 355/53, 430/311, 430/312, 430/5, 438/7, 438/949

INT-CL: [06] G03 F 9/00

L6: Entry 5 of 11 File: USPT Oct 24, 1995

US-PAT-NO: 5461237
DOCUMENT-IDENTIFIER: US 5461237 A

TITLE: Surface-position setting apparatus

DATE-ISSUED: October 24, 1995

US-CL-CURRENT: 250/548; 356/401

INT-CL: [06] G01 N 21/86

L6: Entry 6 of 11 File: USPT Sep 5, 1995

US-PAT-NO: 5448333
DOCUMENT-IDENTIFIER: US 5448333 A

TITLE: Exposure method

DATE-ISSUED: September 5, 1995

US-CL-CURRENT: 355/53

INT-CL: [06] G03 B 27/42

L6: Entry 7 of 11 File: USPT Nov 15, 1994

US-PAT-NO: 5365051
DOCUMENT-IDENTIFIER: US 5365051 A

TITLE: Projection exposure apparatus

DATE-ISSUED: November 15, 1994

US-CL-CURRENT: 250/201.2; 250/548

INT-CL: [05] G01N 21/86

L6: Entry 8 of 11 File: USPT Sep 7, 1993

US-PAT-NO: 5243545
DOCUMENT-IDENTIFIER: US 5243545 A

TITLE: Data linearization system

DATE-ISSUED: September 7, 1993

US-CL-CURRENT: 702/88; 324/130, 324/132, 702/86, 73/1.15, 73/1.88

INT-CL: [05] G01C 25/00

L6: Entry 9 of 11 File: USPT Apr 17, 1990

US-PAT-NO: 4918320
DOCUMENT-IDENTIFIER: US 4918320 A

TITLE: Alignment method usable in a step-and-repeat type exposure apparatus for either global or dye-by-dye alignment

DATE-ISSUED: April 17, 1990

US-CL-CURRENT: 250/548; 356/401

INT-CL: [04] G01H 21/86

L6: Entry 10 of 11 File: USPT May 23, 1989

US-PAT-NO: 4833621
DOCUMENT-IDENTIFIER: US 4833621 A

TITLE: Method of and apparatus for aligning a substrate

DATE-ISSUED: May 23, 1989

US-CL-CURRENT: 716/21; 356/401, 356/508, 438/7, 700/112, 700/114, 700/115, 700/116

INT-CL: [04] G06F 15/46, G05B 1/06

L6: Entry 11 of 11 File: USPT Oct 25, 1988

US-PAT-NO: 4780617
DOCUMENT-IDENTIFIER: US 4780617 A

TITLE: Method for successive alignment of chip patterns on a substrate

DATE-ISSUED: October 25, 1988

US-CL-CURRENT: 250/548; 355/53, 356/401, 700/302, 702/150, 716/19

INT-CL: [04] G01B 11/26, G05B 15/00, G05D 3/00

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L5: Entry 1 of 22 File: PGPB Aug 19, 2004

PGPUB-DOCUMENT-NUMBER: 20040162687
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040162687 A1

TITLE: Method and apparatus for self-referenced wafer stage positional error mapping

PUBLICATION-DATE: August 19, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smith, Adlai	San Diego	CA	US	
McArthur, Bruce	San Diego	CA	US	
Hunter, Robert JR.	San Diego	CA	US	

US-CL-CURRENT: 702/85

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 20030223630 A1

L5: Entry 2 of 22 File: PGPB Dec 4, 2003

PGPUB-DOCUMENT-NUMBER: 20030223630
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030223630 A1

TITLE: Overlay metrology and control method

PUBLICATION-DATE: December 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Adel, Michael	Zichron Ya'akov	TX	IL	
Ghinovker, Mark	Migdal Haemek	TX	IL	
Kassel, Elyakim	D.N. Misgav	CA	IL	
Golovanevsky, Boris	Haifa		IL	
Robinson, John C.	Austin		US	
Mack, Chris A.	Austin		US	

Poplawski, Jorge	Haifa	IL
Izikson, Pavel	Haifa	IL
Preil, Moshe	Sunnyvale	US

US-CL-CURRENT: 382/145

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. De

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☐ 3. Document ID: US 20030202174 A1

L5: Entry 3 of 22 File: PGPB Oct 30, 2003

PGPUB-DOCUMENT-NUMBER: 20030202174
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030202174 A1

TITLE: Method and apparatus for self-referenced projection lens distortion mapping

PUBLICATION-DATE: October 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smith, Adlai	San Diego	CA	US	
McArthur, Bruce	San Diego	CA	US	
Hunter, Robert JR.	San Diego	CA	US	

US-CL-CURRENT: 356/124; 356/401, 430/22

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. De

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☐ 4. Document ID: US 20020183989 A1

L5: Entry 4 of 22 File: PGPB Dec 5, 2002

PGPUB-DOCUMENT-NUMBER: 20020183989
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020183989 A1

TITLE: Overlay error model, sampling strategy and associated equipment for implementation

PUBLICATION-DATE: December 5, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Chien, Chen-Fu	Hsinchu		TW	
Chang, Kuo-Hao	Taichung		TW	
Chen, Chih-Ping	Hsinchu		TW	
Lin, Shun-Li	Hsinchu		TW	

US-CL-CURRENT: 703/2

☐ 5. Document ID: US 20020158193 A1

L5: Entry 5 of 22 File: PGPB Oct 31, 2002

PGPUB-DOCUMENT-NUMBER: 20020158193
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020158193 A1

TITLE: Overlay alignment metrology using diffraction gratings

PUBLICATION-DATE: October 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Sezginer, Abdurrahman	Los Gatos	CA	US	
Johnson, Kenneth C.	Santa Clara	CA	US	
Stanke, Fred E.	Cupertino	CA	US	

US-CL-CURRENT: 250/237G

☐ 6. Document ID: US 20020105649 A1

L5: Entry 6 of 22 File: PGPB Aug 8, 2002

PGPUB-DOCUMENT-NUMBER: 20020105649
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020105649 A1

TITLE: Method and apparatus for self-referenced wafer stage positional error mapping

PUBLICATION-DATE: August 8, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smith, Adlai	San Diego	CA	US	
McArthur, Bruce	San Diego	CA	US	
Hunter, Robert JR.	San Diego	CA	US	

US-CL-CURRENT: 356/401

☐ 7. Document ID: US 20020071112 A1

L5: Entry 7 of 22 File: PGPB Jun 13, 2002

PGPUB-DOCUMENT-NUMBER: 20020071112

PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020071112 A1

TITLE: Method and apparatus for self-referenced projection lens distortion mapping

PUBLICATION-DATE: June 13, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Smith, Adlai	San Diego	CA	US	
McArthur, Bruce	San Diego	CA	US	
Hunter, Robert JR.	San Diego	CA	US	

US-CL-CURRENT: 356/124

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 8. Document ID: US 20020039694 A1

L5: Entry 8 of 22 File: PGPB Apr 4, 2002

PGPUB-DOCUMENT-NUMBER: 20020039694
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020039694 A1

TITLE: Lithographic apparatus, device manufacturing method, and device manufactured thereby

PUBLICATION-DATE: April 4, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Scheiberlich, Arie C.	Veldhoven		NL	
Fien, Menno	Goirle		NL	
Draaijer, Evert H.J.	Eindhoven		NL	

US-CL-CURRENT: 430/30; 250/492.2, 430/296, 430/942

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 9. Document ID: US 6734971 B2

L5: Entry 9 of 22 File: USPT May 11, 2004

US-PAT-NO: 6734971
DOCUMENT-IDENTIFIER: US 6734971 B2
**** See image for Certificate of Correction ****

TITLE: Method and apparatus for self-referenced wafer stage positional error mapping

DATE-ISSUED: May 11, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Smith; Adlai	San Diego	CA		
McArthur; Bruce	San Diego	CA		
Hunter, Jr.; Robert	San Diego	CA		

US-CL-CURRENT: 356/401

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 10. Document ID: US 6721036 B2

L5: Entry 10 of 22 File: USPT Apr 13, 2004

US-PAT-NO: 6721036
DOCUMENT-IDENTIFIER: US 6721036 B2
**** See image for Certificate of Correction ****

TITLE: Lithographic apparatus, device manufacturing method, and device manufactured thereby

DATE-ISSUED: April 13, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Scheiberlich; Arie C.	Veldhoven			NL
Fien; Menno	Goirle			NL
Draaijer; Evert H. J.	Eindhoven			NL

US-CL-CURRENT: 355/53; 355/67, 355/71

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 11. Document ID: US 6614540 B1

L5: Entry 11 of 22 File: USPT Sep 2, 2003

US-PAT-NO: 6614540
DOCUMENT-IDENTIFIER: US 6614540 B1
**** See image for Certificate of Correction ****

TITLE: Method and apparatus for determining feature characteristics using scatterometry

DATE-ISSUED: September 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stirton; James Broc	Austin	TX		

US-CL-CURRENT: 356/630; 356/237.1

☐ 12. Document ID: US 6573986 B2

L5: Entry 12 of 22 File: USPT Jun 3, 2003

US-PAT-NO: 6573986
DOCUMENT-IDENTIFIER: US 6573986 B2
**** See image for Certificate of Correction ****

TITLE: Method and apparatus for self-referenced projection lens distortion mapping

DATE-ISSUED: June 3, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Smith; Adlai	San Diego	CA		
McArthur; Bruce	San Diego	CA		
Hunter, Jr.; Robert	San Diego	CA		

US-CL-CURRENT: 356/124; 356/401, 430/22

☐ 13. Document ID: US 6571371 B1

L5: Entry 13 of 22 File: USPT May 27, 2003

US-PAT-NO: 6571371
DOCUMENT-IDENTIFIER: US 6571371 B1

TITLE: Method and apparatus for using latency time as a run-to-run control parameter

DATE-ISSUED: May 27, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Coss, Jr.; Elfido	Austin	TX		
Conboy; Michael R.	Austin	TX		
Hendrix; Bryce	Austin	TX		

US-CL-CURRENT: 716/4; 257/E21.525, 382/145, 382/154, 438/10, 438/17, 438/946, 700/109, 700/120, 700/121, 716/21

☐ 14. Document ID: US 6556959 B1

L5: Entry 14 of 22 File: USPT Apr 29, 2003

US-PAT-NO: 6556959

DOCUMENT-IDENTIFIER: US 6556959 B1

TITLE: Method and apparatus for updating a manufacturing model based upon fault data relating to processing of semiconductor wafers

DATE-ISSUED: April 29, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Michael L.	Cedar Park	TX		
Wang; Qingsu	Austin	TX		

US-CL-CURRENT: 703/2; 257/E21.525, 700/108, 700/109, 700/110, 700/121, 703/1, 703/12, 703/13, 703/6, 703/7

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. De

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☐ 15. Document ID: US 6535774 B1

L5: Entry 15 of 22 File: USPT Mar 18, 2003

US-PAT-NO: 6535774
DOCUMENT-IDENTIFIER: US 6535774 B1

TITLE: Incorporation of critical dimension measurements as disturbances to lithography overlay run to run controller

DATE-ISSUED: March 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bode; Christopher A.	Austin	TX		
Toprac; Anthony J.	Austin	TX		

US-CL-CURRENT: 700/109; 438/14, 700/121

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. De

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☐ 16. Document ID: US 6532428 B1

L5: Entry 16 of 22 File: USPT Mar 11, 2003

US-PAT-NO: 6532428
DOCUMENT-IDENTIFIER: US 6532428 B1

TITLE: Method and apparatus for automatic calibration of critical dimension metrology tool

DATE-ISSUED: March 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Toprac; Anthony J.	Austin	TX		

US-CL-CURRENT: 702/97; 257/E21.525, 702/108, 702/118, 702/127, 702/170, 702/183, 702/85

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 17. Document ID: US 6458605 B1

L5: Entry 17 of 22 File: USPT Oct 1, 2002

US-PAT-NO: 6458605
DOCUMENT-IDENTIFIER: US 6458605 B1

TITLE: Method and apparatus for controlling photolithography overlay registration

DATE-ISSUED: October 1, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stirton; James Broc	Austin	TX		

US-CL-CURRENT: 438/7; 716/4

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 18. Document ID: US 6449524 B1

L5: Entry 18 of 22 File: USPT Sep 10, 2002

US-PAT-NO: 6449524
DOCUMENT-IDENTIFIER: US 6449524 B1

TITLE: Method and apparatus for using equipment state data for run-to-run control of manufacturing tools

DATE-ISSUED: September 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Miller; Michael L.	Cedar Park	TX		
Sonderman; Thomas J.	Austin	TX		

US-CL-CURRENT: 700/121; 257/E21.525, 700/48

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 19. Document ID: US 6442496 B1

L5: Entry 19 of 22 File: USPT Aug 27, 2002

US-PAT-NO: 6442496
DOCUMENT-IDENTIFIER: US 6442496 B1

TITLE: Method and apparatus for dynamic sampling of a production line

DATE-ISSUED: August 27, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Pasadyn; Alexander J.	Austin	TX		
Toprac; Anthony J.	Austin	TX		

US-CL-CURRENT: 702/83; 257/E21.525, 438/7, 438/8, 702/82, 702/84

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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☐ 20. Document ID: US 6427093 B1

L5: Entry 20 of 22 File: USPT Jul 30, 2002

US-PAT-NO: 6427093
DOCUMENT-IDENTIFIER: US 6427093 B1

TITLE: Method and apparatus for optimal wafer-by-wafer processing

DATE-ISSUED: July 30, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Toprac; Anthony J.	Austin	TX		

US-CL-CURRENT: 700/121; 438/5, 700/108, 700/45

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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